Each light burst is used to create a particular portion of a printed symbol or character. The more often a pixel is pulsed, the more often a symbol or character portion will be imaged, thus providing greater detail and higher resolution printing. Therefore, for the printing to be completed within a commercially reasonable time with high resolution, it is necessary to have a high rate of pulsing.

A1 (concluded)

Please delete the paragraph starting on page 2, line 11 through page 2, line 17 and replace with the following replacement paragraph:

A2

Evaluation of a 1200 SPI bar revealed an inconsistent pitch. The distance between adjacent pixels on different chips was large by more than 4.3 μm or 20% of the pitch. (see Figure 1) This much error causes undesirable banding on prints. Clearly, the technology that creates LED's has improved to where 1200 SPI LED's are possible, but the technology that places the chips has remained at 600 SPI.

Please delete the paragraph starting on page 5, line 11 through page 5, line 12 and replace with the following replacement paragraph:

A3

FIG. 4 is a graph comparing the emission performance of a center electrode.

Please delete the paragraph starting on page 6, line 1 through page 6, line 22 and replace with the following replacement paragraph:

a4

Referring to Fig. 6, the present invention generally comprises a linear LED array having a consistent pitch between adjacent pixels that satisfies the general design rules for 1200 SPI LED arrays. The light intensity of the end LED devices on each chip of a printhead in an array is shifted in order to make the light appear closer to the end of the array than it actually is. This allows the chip to be diced closer to the light centroid and the chips in the array can be stitched or mounted closer together. As shown in Fig. 6, the electrode 52 on the end LED 56 is inward biased to move the centroid of the emitted light closer to the chip edge. The centroid of LED 56 is no longer centered over the LED. This allows the gap 58 between chips 51 and 53 to be larger than the gap 27 shown in Fig. 2, while substantially maintaining the correct or ideal distance between adjacent pixels on different chips. The LED array of the present invention eliminates the spikes shown in Fig. 1 and removes the associated banding. It is a feature of the present invention to provide a linear 1200 SPI LED array with a constant pitch of 21.2 μm and a minimal gap between LED chips without fracture or contact between adjacent chips.

Please delete the paragraph starting on page 7, line 3 through page 7, line 17 and replace with the following replacement paragraph:

a5

Fig. 2 is an illustration of a typical 600 SPI architecture applied to 1200 SPI. In order to maintain at least a 5μm buffer

zone between the end LED 21 and the chip edge 23, as well as maintain at least a 5μm gap 27 between chips 22a, 22b, the pitch 29 between adjacent pixels on different chips is significantly larger than the average pitch 25. This is undesirable. The LED bar evaluated to produce the graph of Fig. 1 is similar to the architecture shown in Fig. 2. Fig. 1 is a graph of the differences in pixel spacing of a 1200 SPI LED bar manufactured by Okidata. The average spacing on pitch between pixels on the same chip is 21.2μm. However, the spacing of adjacent pixels on different chips is 4.3 μm over-pitch. The spikes (could also use "peaks") shown on the graph occur at every chip boundary.

A5 (concluded)

Please delete the paragraph starting on page 8, line 15 through page 8, line 28 and replace with the following replacement paragraph:

Plots 41 and 43 of Figs. 4 and 5 are micrographs of 1200 SPI-sized LEDs. The bottom plots 42 and 43 are corresponding near field emission scans overlaid on the LED region. In plot 42 the emission line is 423 and the LED profile line is 421. In plot 44, the emission line is 441 and the LED profile line is 443. The side electrode 52 of Fig. 6 produces a centroid right of center (pushes light toward edge of chip). As shown in Figs. 4 and 5, the LED profile centroid of each plot 42, 44 is at 20.8 μm. The emission centroid produced by the center electrode LED 26 of Fig. 2 is at 20.8 μm. The emission centroid produced by the side electrode LED 56 of Fig. 6 is at 18.2 μm. The side electrode 52 of Fig. 6 moves the centroid 2.6 μm relative to the LED 56.

A6